

## ECONOMICS, SGMA, DISTRICT FINANCES & WATER RATES

Today, I would like to spend a few minutes discussing the economics of the overdraft, where SGMA comes in, how SGMA will impact the finances of the District, and what these impacts mean for future water rates.

To better understand the economics, I need to begin with a little hydrology:

- What underlies the entire Borrego Valley is one big bowl — the Borrego Valley Groundwater Basin. Vertically, this basin has three primary layers. The layers have different sized sediments, different amounts of water these sediments contain per cubic foot, and different water qualities. To keep it simple, we refer to these layers as the lower, middle, and upper aquifers. The bowl is tipped so that the upper aquifer is relatively deep (as much as 1000 ft.) in the northern portion of the basin and relatively shallow in the southern portion of the basin (as little as 2 feet and unsaturated);
- Horizontally, this basin is usefully divided into three "management areas" — the Southern, Central, and Northern Management Areas. What primarily characterizes these management areas from one another is their transmissivity — how fast groundwater moves in each of these areas to an adjacent area. This is affected by a number of technical reasons that I will not get into here;
- From an economic perspective, the hydrology of the basin has consequences to the potential cost of future municipal water supply. When I use the term 'municipal water,' what I mean is water that meets present federal and state drinking water standards;
- Presently, much of the municipal water comes from production wells that are pulling water primarily from the middle aquifer of the Central Management Area. For easy comparison purposes only, lets say the cost of treating this water to drinking water standards is about 1 penny per unit. If the water instead was primarily coming from new Northern Management Area production wells, the cost for treating some of these wells to drinking water standards might be 52 cents/unit or 52x as much. If the water was coming primarily from new wells in the Southern Management Area, the cost to treat this water to drinking water standards might be as high as \$1.25/unit or 125x as much;<sup>1</sup>
- Why is that? In the Northern Management Area, production wells primarily draw groundwater from the upper aquifer that are somewhat likely (30/70 probability) to have nitrates, arsenic, and total dissolved solids that may in some cases exceed drinking water standards. If it exceeds drinking water standards, drinking this water untreated would be unhealthy. Thus,

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the District would be required to invest in treatment technology to bring the water to drinking water standards. In the Southern Management Area, production wells primarily draw water from the lower aquifer that are likely (better than 80% probability) to have arsenic levels that may exceed the drinking water standards. Arsenic is also expensive to remove to bring groundwater up to drinking water standards<sup>2</sup>;

- Now, lets discuss SGMA. SGMA requires the District and County to work together to bring the basin to sustainable use by no later than 2040. Sustainable use is presently being thought of as reaching a sustainable yield of 5,700 AFY, the US Geological Survey's estimate based on the past 66-years of recharge data, which would require an across the board reduction in annual average groundwater usage of approximately 70%;
- Effectively, what that means is that groundwater will now cost something rather than nothing for all pumpers in the Valley. The State Water Resources Control Board has even released preliminary costs for all groundwater use if the State has to come in and take over the basin;
- For the District, this has two economic consequences. The District will need to purchase additional water supply to serve some of its existing customers and all new customers. This would be accomplished by purchasing presently irrigated farmland to fallow. The District will also have increased O&M costs to pay for the groundwater it pumps (as would all pumpers in the basin);
- The District has done preliminary estimates of the financial impacts to its current customer base. Rates could potentially increase over the next 20-years by a factor of around 2x on a purchasing power parity basis. That means that instead of paying ~\$3/unit today, customers would be paying ~\$6/unit in today's dollars by 2040. If your water bill was \$100 today, tomorrow the bill might be ~\$160 in today's dollars;
- However, present County zoning includes ~3,000 unbuilt, but build-able lots zoned by the County. The District would be required to have adequate supply in place for these build-able lots before 2040. This could require an increase of rates of about a factor of 3 or more on a purchasing power parity basis. What that means is that the overhang of unbuilt lots produces a liability for the District's current customers that could potentially require water rates instead of ~\$3/unit today to reach ~\$8/unit in today's dollars by 2040. If your water bill was \$100 today, tomorrow the bill might be ~\$220 in today's dollars;<sup>3</sup>

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- Keeping municipal water rates affordable may be the number one determinant of whether one has a sustainable community, not necessarily the amount of remaining groundwater in the basin:
  - Under SGMA, up-zoning to add additional lots for development would likely create an immediate financial liability to the District. For example, in the case of the two up-zoning requests in front of the County presently that could add as many as 500 EDU's, the immediate (not future) liability to the District may be approximately a few million dollars;
  - Getting the time to reach sustainable yield right has a economic worth of ~\$40M, which is the estimated present value (PV) incremental capital & operations and maintenance costs associate with advanced water treatment for municipal water, if necessary. The 2040 SGMA deadline is entirely arbitrary. This timeframe may or may not exceed a tipping point for degraded water quality that could lock-in the need for advanced treatment;
  - Keeping the cost of municipal water affordable to the District's ratepayer base may be worth ~\$300,000,000 in property values on a worst-case basis. For example, without affordable municipal water, property values in the Valley would likely plummet;<sup>4</sup>
  - If property values plummet due to unaffordable municipal water costs, the PV cost of lost property values to the County is ~\$125,000,000 in lost property taxes over time as a worst case estimate (\$5M annual annuity @ 4%)<sup>5</sup>;
  - Adding to this economic loss is potential loss of revenue to the region from the amount spent by visitors to the Anza-Borrego Desert State Park, which presently amounts to ~\$40,000,000 a year, on average. If Borrego disappears as a gateway to the state park and visitors decline by half, this would be a PV loss of ~\$500,000,000 in revenues to the region, primarily to San Diego County's businesses (\$20M annual annuity @ 4%)<sup>6</sup>;
  - Thus, the objective of any plan to address the overdraft must be to eliminate the overdraft, bringing the basin into balance in a timely fashion, but in a manner that does not drive municipal water rates to an unaffordable level.

From this standpoint, SGMA is merely an opportunity to get our house in order — now, rather than sometime in the distant future when costs are likely to be higher than potential future costs projected today. For presently, the entire Valley is running rapidly toward a cliff from which the fall is likely to hurt — a lot.

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Its up to each of us to engage in thoughtful problem solving discussions necessary to plan for a sustainable future. Blaming someone else for our situation today is hardly useful or ethical.

- What is important for each of us to remember is that there are few places in the world where issues of sustainable use of groundwater resources is not as high or even much higher than it is for us here in Borrego — sometimes the presenting issue is freshwater supply, sometimes water quality, sometimes decaying infrastructure costs, sometimes watershed protection or subsidence;
- In terms of cost of water, Borrego is in a much better position to control costs than many places. Throughout many places in the nation (and world) potable water costs are projected to increase faster and higher than water rates may here in Borrego;
- In terms of water quality, Borrego presently has some of the highest quality municipal water anywhere. And, the water being recharged from the watersheds in the Anza-Borrego Desert State Park is protected from industrial and agricultural pollutants entering the groundwater, which is not remotely the case for many groundwater basins in the nation (and world);
- What is potentially different here in Borrego is that sustainability issues we face are relatively small scale and should be able to be solved — IF we decide to work together, not play games or attempt to maximize our own individual outcomes rather than work for the common good.
- For we are all on the same boat — island Borrego. Selfish behavior has little survival value in this situation. Cooperation may be only reasonably affordable path forward towards a sustainable future.

[brief discussion of rates comparison & financial health of District slides]

### Q&A

Q1: In an adjudication, wouldn't the District be given priority for its share of the basin's sustainable yield?

A1: Yes. In no adjudication in CA that I am aware of has a court ruled that a municipality is not entitled to any withdrawals from its groundwater basin.

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Q2: Does that mean that the District would not be required to cutback any of its current usage under an adjudication? And, if so, why would it agree to cutbacks under SGMA?

A2: If you are speaking about the court decision in the Mohave adjudication, it is doubtful that in Borrego's specific case either CA water law or SGMA would enable the District to pass its fair apportionment of costs to other water users in the basin.

Q3: But, what about the provision in the CA water code that specifically states that municipal water use has priority?

A3: Actually, I answered that question in A1. As far as the District is aware, no court has ever nor will ever reduce a municipal water use to zero. However, that does not mean that municipal water use will not be reduced proportionally. Also, the law works in the other direction as well, if the District had access to or was purchasing new water supply, that new water supply, under this provision in law, the District would be required to first satisfy the demand from its municipal customers before it could allocate any of this new supply for non-municipal use.

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**H.L. Mencken reputedly said, "For every complex problem, there is a solution that is simple, neat, and wrong."**

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He who asks a question is a fool for five minutes; he who does not ask a question is a fool forever. We are all born ignorant, but to stay ignorant is a choice, without some form of education you are lost. —  
*(Chinese Proverb)*

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### ENDNOTE

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<sup>1</sup> The average total cost for arsenic/nitrate treatment is \$227 to \$548 per acre-foot depending on treatment technology and source water quality (arsenic treatment costs based on 2011 EPA Cost Study). Treatment for nitrate uses similar technology and will be about the same cost as arsenic for this high-level analysis.

Each unit of water = 748 gallons or 100 cubic feet (HCF)

1 acre-foot = 43,560 cubic feet

so cost per HCF =  $\$227/43,560 \times 100 = \$0.52$  per HCF  
=  $\$548/43,560 \times 100 = \$1.25$  per HCF

Thus, the average expected total cost for arsenic/nitrate treatment is \$0.52 to \$1.25 per HCF.

<sup>2</sup> See Dudek, "Borrego Springs Subbasin Management Areas and Groundwater Quality" (March 9, 2017) at Borrego Springs Subbasin Management Areas and Groundwater Quality Monitoring at

<sup>3</sup> See [http://www.borregowd.org/uploads/2017.1.17\\_BWD\\_Board\\_Package\\_3.pdf](http://www.borregowd.org/uploads/2017.1.17_BWD_Board_Package_3.pdf).

<sup>4</sup> See BWD FY 2016 annual audited financials located at [http://www.borregowd.org/uploads/2016\\_fye\\_audited\\_financials.pdf](http://www.borregowd.org/uploads/2016_fye_audited_financials.pdf).

<sup>5</sup> See BORREGO WATER DISTRICT REVENUE BY TAX RATE AREA Fiscal Year 2016-17, County of San Diego / Auditor & Controller Dept / Property Tax Services (02/27/2017)

<sup>6</sup> See [http://www.borregowd.org/uploads/Final\\_Reconnaissance\\_Report.pdf](http://www.borregowd.org/uploads/Final_Reconnaissance_Report.pdf).