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Top 10 Reasons Why Desalination Is Better Than Desertification

The Southern Nevada Water Authority (SNWA), speculators, and developers have been fear mongering us to believe that the **15 billion dollar** (minimum) Groundwater Development Project (Watergrab) is our only option to save Las Vegas from the reality of living in the desert. Any rational person would advise them to live within their means – and that sustaining unsustainable growth is not sustainability.

We've tried. But since the money grabbers don't want to hear that, the rest of us need to minimize their plundering. Just in case nobody noticed, there is an ocean of water just one state away. And desalination costs have plummeted in the over 20 years since the official commitment to take water away from Las Vegas' less politically powerful neighbors. Let's consider the costs/benefits:

1. With desalination, there will be more water. No matter how we look at it, desalination adds to the total fresh water available to Southern Nevada. And by saving Nevada's underground reserves for desperate times and/or future generations, we add to the economic stability of the area. Nevada has a simple choice; we can plan for abundance, which is good for the people. Or, we can plan for scarcity, which is only good for the profits of the water providers.
2. Every big project has environmental consequences. However, wisely designed desalination facilities can greatly minimize potential environmental damage. Presently, most municipal plans for desalination plants are massive facilities right on the beach – with lots of consequences. But desalination plants don't have to be designed that way. Floating desalination plants have been used for decades on ships and near oil rigs. Floating desalination plants can be located out to sea, away from sensitive coastal waters. And floating desalination plants will likely be smaller, creating a smaller impact in the immediate area. Floating desalination plants can even be powered by wave and wind energy. And most importantly, Florida based Water Standard Company claims that they can desalinate water offshore for 30% less cost than land-based facilities.

...On the other hand, the Watergrab environmental effects will be severe and immediate. Localized areas of mass extinction are inevitable when what little water there is in the desert is taken away. Water tables will drop within just a few years, which will result in the killing of everything dependent on ground water and springs. “Mitigation” can never be more than the equivalent of band-aids on severed limbs. A few water troughs may provide enough water for larger animals, but what are they going to eat? Moreover, not just the valleys are in danger. Water flows downhill – even underground. Which means water levels in the surrounding mountain ranges will drop also. Inevitably; open range will become desert, forests will burn, plants and animals will die in mass, Wilderness Areas will lose their wildlife, and the natural environment of Nevada's only National Park will be

irreparably damaged.

3. A common misconception is that desalinated water will have to be piped to Las Vegas. Actually, no pipeline is necessary. SNWA can just trade the desalinated water for more water from the Colorado River. In fact, SNWA has already committed to this concept by teaming up with the Yuma Desalination Facility. ...What this means is SNWA has a choice of building a multi-billion dollar (economy crushing) Watergrab pipeline or desalinate water and *not* build a multi-billion dollar pipeline. If politics weren't involved, the decision would be obvious.
4. Desalination is cheaper. The price of desalination has dropped to about \$2000 an acre foot. Yet SNWA has spent as much as \$10,000 an acre foot for water in Mesquite. Is this an indicator of what SNWA plans on *charging* for water? (If so, this isn't about need, it's about greed.)

...But we can look at this is a different way. **Aquaforia** reports that a new desalination facility will be built in Baja California that will make 5.7 million gallons of fresh water per day (6385 acre feet per year). The Watergrab, on the other hand, is expected to steal about 180,000 acre feet per year. That's 28 times as much water as the desalination plant. The cost of the desalination plant is 41.5 million dollars. So, $28 \times 41.5 \text{ million} = 1.2 \text{ billion dollars}$. That may sound like a lot of money, but the projected cost of the watergrab construction is 7.5 billion dollars! Which means the Watergrab construction costs are *over 6 times the cost* of building the equivalent in desalination facilities!

5. Desalination just keeps getting cheaper – while the cost of pumping water from some other part of the State just keeps getting more expensive. For example:
 - a. NanoH2O Quantum Flux reverse osmosis membranes increase water production by as much as 70%.
 - b. Spectra Watermakers Inc. sells a pump that recaptures up to 80% of the energy wasted in a conventional desalination system.
 - c. The Aqualyng Recuperator recycles waste desalination energy up to 98.5%.
 - d. Energy Recovery Inc. pressure exchanger energy recovery technology promises over 60% energy savings.
 - e. Memsys Clearwater combine both thermal and membrane technologies to utilize low-level waste energy for thermal Vacuum Multi Effect Membrane Distillation (desalination). The main advantage of this process is that it does not require high pressures.
 - f. Oasys Water has developed a forward osmosis desalination technology that uses one tenth of the power of conventional reverse osmosis.
 - g. Researchers have also come up with many more ways to bring the price of desalination down. In time, many of these designs may augment, or even replace the least expensive desalination methods possible now.

...The reason falling costs of desalination are so important is because SNWA wouldn't have to buy some of the desalination plants until much later.

Desalination plants can be built as needed (in much less grandiose of efforts than

the Watergrab). This means it is very likely that Southern Nevada's desalination needs can be achieved even cheaper than we expect.

...And since the price of power keeps rising, the cost of pumping water out of the ground and across the state will very likely be much more expensive than we expect.

6. Risk is very important. Finance charges are higher for riskier projects. And the risk of huge cost overruns for big projects are often very high. Since the Watergrab project is hideously expensive – and worthless until it's finished, commitment to it is very risky. Smaller projects that can be built as needed are a much lower risk. With desalination, SNWA doesn't have to invest billions of dollars all at once – hoping that there really is water out in the desert – and there will be someone left in Las Vegas to pay for it when the bills come due.
7. Who pays for the project is very important. With smaller, less expensive (desalination) projects, the burden of paying for new water projects can be paid for by new residents. On the other hand, the cost of the Watergrab is so expensive that present residents will be paying a huge bill for water *for other people*.
8. Offshore desalination doesn't ruin anyone's tourism economy. California beaches can still look pristine, and Nevada deserts can too.
9. Offshore desalination can actually help Las Vegas' tourism economy – by Las Vegas not being perceived as the evil empire. Las Vegas does not want to project their image as callus destroyer of vast ecosystems (like in the movie **Rango**). That image just doesn't sound like a fun place to go.
10. Without a watergrab, the rural counties next to Southern Nevada will continue to have viable economies, which will prevent them from becoming the nation's toxic waste dump site – right next door to Las Vegas.

Bonus Reason:

11. With offshore desalination, no one will have to explain to their children what the desert, the open range, and the mountains of Nevada looked like before Southern Nevada killed them.

So...

If offshore desalination is such a good idea, why didn't SNWA commit to it 20 years ago?

Because no one anticipated the cost of desalination, wind, and wave energy to drop like they did. (Wave energy is as cheap as PV solar now.)

So...

If offshore desalination is such a good idea now, why hasn't SNWA changed their

minds?

1. After spending hundreds of millions of dollars on the Watergrab, it would be political suicide to admit they made a mistake.
2. Nevada water law is written such that if SNWA backed down, somebody else would just take the water. Sadly, there is no provision in Nevada water law to save water for future use. (The future doesn't have any lobbyists to support their cause.)
3. Because of the way our political and campaign systems (dys)function, our politicians and bureaucrats are not politically permitted to make wise long term decisions.
4. There is a potential here for a few corrupt local officials to get very wealthy by selling out Las Vegas to predatory lenders.

This is too important a decision not to be voted on.