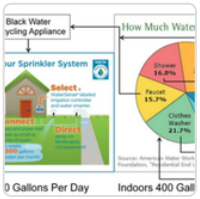


# Rebates to Unlock Water Efficient Technologies and Retrofits (WET&R) (Booth 24) (/initiative/4WG6/rebates-to-unlock-water-efficient-technologies-and-retrofits-wetr-booth-24)

Water efficient technologies and retrofits (WET&R) projects could reduce water consumption by >50% and sewer outflows by >90%. Water treatment and distribution systems (WTDS), including desalination and advanced water treatment water recycling, are 10x more expensive than WET&R projects. Despite the high cost, WTDS projects are cheaper on a cash flow basis because WTDS projects are financed over 30 years. We propose a rebate (i.e. 3 years of public financing) on custom WET&R projects, enabling them to compete with WTDS projects on a cash flow basis. WET&R projects can range from fixing leaks to zNano z2o direct laundry water reuse systems. This is rebate is in use by

## Comments

Doug Valby 3w, 6d ago

The statistics presented are exaggerated, but it's still something that we can and are implementing. Keep in mind that it takes water to operate the sewer system. Solids must be diluted in order not to clog the sewer system.

zNano 3w, 6d ago

Hello. It was pointed out at the conference that the data we used is the national average. Santa Cruz's water consumption is about half the national average. Therefore, our numbers were inflated. In the future, we will use numbers that better reflect current local consumption.

Manu Koenig 3w, 6d ago SUGGESTION

As with all conservation related proposals, the determining question is how many people will implement. You could start marketing these kinds of rebates right away with a very limited budget (say 100 systems/rebates only) and see how fast they go. That would give you a sense of the overall demand. I wonder if the Water Dept. would consider implementing this kind of a rebate 'experiment' in a timely way?

Ellen Murtha 4w ago

Rebates can motivate consumers

Colin Young 3w, 5d ago NEUTRAL

I am in favor of incentivizing technology, but do not see rebates as having any significant impact on solving Santa Cruz’s water crisis in the near future. I give this a neutral because the proposal is financially inconsequential.

zNano 3w, 4d ago

Thanks for your response. We think the simplicity of rebates obfuscates the power of rebates which can be as fast as large infrastructure. For example. because of the drought, the citizens of California have decreased usage by 11% without financial incentives or technological solutions. While some of the decrease is a result of rationing (and "showering" in the ocean), some of the decrease is from new ideas that are applicable at the city level. Ideas that could be implemented on a city wide scale given some invest by both the city and individual. If we incent people to implement these ideas, they could have a significant impact on water usage. Conversely, any large infrastructure project

will take 3 - 5 years to design, build, and "turn on". Advanced water recycling in San Jose took 3 - 4 years to "turn on." San Jose will be paying for the plant over 40 years. Similar arguments were made against the potential for cleantech the energy sector. Those arguments have been disproven. The renewable portfolio standard (RPS) in 2002 targeted 20% renewables by 2017. 20% was achieved within 11 years, and the new target is 33% by 2020. These types of numbers demonstrate the smart investments in distributed conservation and reuse has the potential to be a significant part of our water future within the same time period as building large infrastructure.

Todd Anderson 3w, 2d ago

Has anyone brought up water condensors? There's a $550 tower, the Warka Water Tower which claims to make 25-30 gallons/day out in Ethiopia. It stands 30' by 30'. What if our town built some of these, tinkered with them and built more, continuing to improve on methods and techniques. What if our town ends up bulding thousands of water condensors? What if these towers could condense 100 gallons per day into water? 10,000 towers * 100 gallons * 365 days = 365 million gallons per year. http://en.wikipedia.org/wiki/Air_well_(condenser) (http://en.wikipedia.org/wiki/Air_well_(condenser)) http://www.wired.com/2014/03/warka-water-africa/all/1 (http://www.wired.com/2014/03/warka-water-africa/all/1)

zNano 3w, 2d ago

rebate it!

Heather Lukacs 4w ago QUESTION

This is a very interesting proposal! Might you have more information on the proposed technology - the zNano z2o AWT Appliance? I am interested in the scale of the technology - is it household or community/city scale? And, more information in general. Thanks!

zNano 3w, 6d ago

Thanks for your interest. The unit is targeted for small communities (30 home or more) or commercial installations such as laundries, hotels, hospitals, gyms, etc. We used the same technologies as the San Jose Advanced Water Treatment plant.

Jim Mekis 4w ago NEUTRAL

Not clear how this could be applied to rental properties, so it may not apply to a large percentage of the population.

Robert Singleton 3w, 4d ago

I totally agree. Implementation will be the most difficult aspect of this proposal. You would need to have a very effective outreach team to make sure rental property owners comply.

Robert Singleton 3w, 4d ago PRO

Ultimately I think this proposal, or some variation of it, should be implemented no matter what. The cost is much lower than a major infrastructure investment and will likely have immediate results. It should definitely be considered as one of the "portfolio" solutions. Additionally, as with Soquel Creek, this plan would need to be accompanied with a major outreach component to ensure adoption, but even with staff time for outreach is will likely be cheaper per unit of water, with quick results.

I do not see this as a stand alone solution, so I rated it high practicability and lower on total impact.

costas spalaris 3w, 2d ago

Looks like all wishful thinkers are out there. The recyclers are using the "lets Recycle" phrase without telling the rest of us what are the details or consequences I really like to see the first Santa Cruzan who drinks recycled water. All the schemes cited so far are palliatives . We all witnessed "Conservation" which I support, will also cost a 10%/per year water service increases for the next 5 years and counting. Those who oppose the obvious solution emphasize costs. EVERYTHING costs more when it does not rain, especially conservation!!!

zNano 3w, 2d ago

Recycling refers to many methods to reuse water. One subset is "toilet to tap." Our proposal specifically does not include toilet to tap. Technologies include reusing water for irrigation or recycling water from and for appliances. These technologies have been proven to be safe. As for toilet to tap, zNano has drank recycled water hundreds of times. It tastes normal and is cleaner than tap water. When the AWT plant in San Jose was installed, everyone drank the water. In Singapore, they drink recycled water from the tap. Details of the AWT water recycling plant are available on the web and are linked from our website. Things cost more because of the large infrastructure we have to pay for over 30+ years. Reuse projects get paid off in 3 - 6 years enabling us to save money when we conserve water.

Fred Martinez 2w, 6d ago CON

People already are using every low flow, low consumption devices available to them.

Heather Lukacs 4w ago QUESTION

Heather Lukacs 4w ago (comment disabled) QUESTION

Jean Brocklebank 3w, 6d ago NEUTRAL

Worth considering

Bill Smallman 3w, 6d ago NEUTRAL

I think an important point that needs to be made here is that we have invested already millions, if not billions, in waste water infrastructure. I do not see the flush toilet going away very soon for City Dwellers. If we invest in an improved recycling plant, which takes advantage of the billion dollar + wastewater infrastructure, would not this be more cost effective and instantly capture 100% of the water with zero water going out the ocean outfall? I'm in total favor of conservation, but feel it is more effective to do this, and have City Dwellers focus on drought resistant landscaping, grey water and rain catchment, and know that their toilet water is getting recycled at the plant. Rural customers, on the other hand, this program would be extremely beneficial.

zNano 3w, 4d ago

Thanks for your response. There is a great advantage to onsite reuse even of toilet water. The treatment required for centralized recycled water is much greater than distributed water reuse like septic systems or composting toilets. Because there will be human exposure to recycled water for centralized wastewater (toilet water) treatment, the water requires the most advanced treatment technologies such as filtration, reverse osmosis, and ultraviolet disinfection. In San Jose, it cost $72 mil to recycled 8 million gallons per day. This does not include infrastructure costs or the cost of the tertiary treatment water plant. Currently, Santa Cruz does not have recycled water infrastructure. Reusing toilet water on site, i.e. a septic system, does not require a high level of treatment because the water can stay in the ground without risk of human exposure and lower levels of treatment. One proposed technology is composting toilets like those installed at the brooklyn zoo.

Bill Smallman 3w, 2d ago

I respectively disagree. Again, I think this is absolutely something to look at for rural areas, but Cities are way too densely populated. That $72 million to recycle is for 10 MGD, and we have on average 8.4 MGD. That would be less I believe, and literally turn the sewer outfall pipeline off. If you added up the majority of homes installing systems, many would start polluting the ground water basin, which could go over to potable wells. That is the reason why sewage collections systems were put it in the first place. You are assuming everyone will be able to upkeep these systems in

the future. People will continue to pay water and sewer fees + more money for buying and maintaining your systems, and this is far more expensive than $72 million IMO,